

We claim:

1. Apparatus for gas distribution in a semiconductor wafer processing chamber comprising:

427  
B1

- a roof fabricated from a silicon-based material;
- a recess disposed within said roof;
- a gas distribution plate disposed within said recess; and
- a plurality of apertures disposed within the roof extending from the gas distribution plate.

2. The apparatus of claim 1 wherein the recess is disposed on a top surface of the roof.

3. The apparatus of claim 2 wherein a seal circumscribes gas distribution plate.

4. The apparatus of claim 2 wherein the roof further comprises a plurality of grooves formed in the recess.

5. The apparatus of claim 4 wherein the plurality of apertures disposed within the roof extend from each of said plurality of grooves into a bottom surface of the roof.

6. The apparatus of claim 1 wherein the roof is fabricated from silicon carbide.

7. The apparatus of claim 1 wherein the gas distribution plate is fabricated from silicon carbide.

8. The apparatus of claim 1 wherein the recess is formed on a bottom surface of the roof.

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9. The apparatus of claim 8 wherein a gas feed channel extends from the top surface of the roof to the recess.
10. The apparatus of claim 8 wherein the bottom surface of the roof and the gas distribution plate are covered by a material layer.
11. The apparatus of claim 10 wherein the material layer is silicon carbide.
12. The apparatus of claim 11 wherein the material layer is deposited by chemical vapor deposition (CVD).
13. The apparatus of claim 10 wherein the material layer further comprises a plurality of apertures disposed therein.
14. The apparatus of claim 1 wherein the gas distribution plate further comprises a plurality of grooves.
15. The apparatus of claim 14 wherein the gas distribution plate further comprises a plurality of apertures disposed in each of said plurality of grooves.
16. The apparatus of claim 8 wherein the roof is fabricated from silicon carbide.
17. The apparatus of claim 8 wherein the gas distribution plate is fabricated from silicon carbide.
18. Apparatus for gas distribution in a semiconductor wafer processing chamber comprising:  
a roof having a top surface and a bottom surface;  
a recess disposed within the bottom surface of said roof;  
a gas distribution plate disposed within said recess; and

a material layer coating disposed upon the bottom surface of the roof and the gas distribution plate.

19. The apparatus of claim 18 wherein the material layer coating further comprises a plurality of apertures.

20. The apparatus of claim 19 wherein the gas distribution plate further comprises a plurality of apertures.

21. The apparatus of claim 20 wherein the apertures of the gas distribution plate coincide with the apertures in the material layer coating.

22. The apparatus of claim 18 wherein the material layer coating is formed from silicon carbide.

23. The apparatus of claim 18 wherein the material layer is deposited by chemical vapor deposition (CVD).

24. The apparatus of claim 18 wherein the roof is fabricated from silicon carbide.

25. The apparatus of claim 18 wherein the gas distribution plate is fabricated from silicon carbide.

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B3